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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,446

12/30/2003

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04/13/2005

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EXAMINER

KANG, DONGHEE

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/748,446	Applicant(s) DANI ET AL.	
	Examiner Donghee Kang	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-18, 20-28 and 30 is/are rejected.
- 7) ☒ Claim(s) 19 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 1-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 03-02-05.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 9-11, 15-16, & 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Chadha (US 5,641,416).

Re claim 9, Chadha teaches a method for separating a silicon wafer, the method comprising (Fig.1):

Coating a surface of the silicon wafer (10: Col.3, line 29) with a soluble protective coat (52: Col.4, line 3); and laser scribing the coated surface of the silicon wafer (Col.3, lines 41-42).

Re claim 10, Chadha teaches the protective coat is an organic resist material.

Re claim 11, Chadha teaches the method further comprising washing the silicon wafer with a solvent (Col.4, lines 13-14).

Re claim 15, Chadha teach the soluble protective coat is optically transparent.

Re claim 16, Chadha teach the soluble protective coat is ablated by the laser scribing.

Re claim 20, Chadha teaches a method for separating a silicon wafer, the method comprising:

Saw cutting the silicon wafer having a soluble protective coat; and providing a flow of solvent during the saw cutting, the flow of solvent being sufficient to remove at least a substantial portion of the soluble protective coat (See Col.3, lines 41-42 & Col.5, lines 42-44).

Re claim 21, Chadha teaches the protective coat is an organic resist material.

4. Claims 9-12, 14-22, & 24-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Sharan (US 2005/0070095).

Re claims 9, 17, 20 & 25, Sharan et al. teach a method for separating a silicon wafer, the method comprising (Figs.1-6):

Coating a surface of the silicon wafer (Fig.1, 105) with a soluble protective coat (, Fig.3A, 130); laser scribing the coated surface of the silicon wafer (paragraph 0016); and saw cutting the silicon wafer under a flow of solvent sufficient to remove at least a substantially portion of the soluble protective coat (paragraph 0018).

Re claims 10 & 21, Sharan the soluble protective coat is organic material.

Re claims 11-12, 18, 22 & 28, Sharan teaches the soluble protective coat is water soluble flux and the solvent is water (paragraph 0016 & 0018).

Re claims 14 & 24, Sharan teaches the silicon wafer includes die bump (115) and the coating includes coating the die bumps with the soluble protective coat.

Re claims 15 & 26, Sharan teaches the soluble protective coat is optically transparent.

Re claims 16 & 27, Sharan teaches the soluble protective coat is ablated by the laser scribing.

Re claim 30, Sharan teaches solvent is pressurized sufficiently to remove at least a substantial portion of the soluble protective coat.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-13 & 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadha (US 5,641,416).

Re claims 12 & 22, Chadha does not explicitly teach the soluble coat is a water soluble and the solvent is water. However, the protective coat of Chadha is also water soluble because both protective coat are made of same material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a water as a solvent since it is a known material well suited for the intended purpose.

Re claims 13 & 23, Chadha does not teach the washing is with water at room temperature. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the temperature in order find the optimal temperature ranges.

Allowable Subject Matter

7. Claims 19 & 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 571-272-1656. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Kang Donghee".

Donghee Kang, Ph.D.
Primary Examiner
Art Unit 2811

dhk